

## MECHANO-CHEMICAL ACTUATOR

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**Applicant:** TOYOTA CENTRAL RES & DEV

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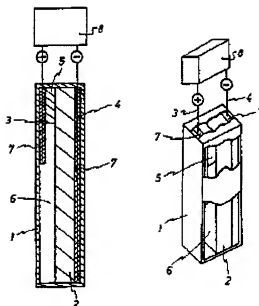
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### Abstract of JP2041685

**PURPOSE:** To rapidly and largely bend and deform by controlling a DC voltage to be applied between positive and negative electrodes, and so absorbing and swelling electrolyte solution as to differentiate ionic polymer gel on positive and negative electrode sides. **CONSTITUTION:** A mechanochemical actuator is formed at a rectangular shell 1 of a polymer elastic material such as, for example, an acryl film or the like, and platelike ionic polymer gel 2 to be bent by the application of a DC voltage and platelike positive and negative electrodes 3, 4 for applying electric energy to the gel 2 are disposed in an inner space. The electrode 4 is flexible, and deformed upon deformation of the gel 2, and the electrode 3 is so disposed that the gel is not brought into contact therewith through a plastic spacer 5. The electrodes 3, 4 are covered on the surfaces with nonionic polymer gel 7, and electrolyte solution 6 is filled in a remaining space. A power source 8 is connected between both the electrodes. Thus, the positive electrode side face absorbs much solution to be swelled under the control of the application of a voltage thereby to bend the whole.



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